



MSIAC M&S Newsletter

February 2006

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If you would like to submit an article to be highlighted in the *MSIAC M&S Newsletter*, please forward the article (along with its source data and URL, if available) to the MSIAC Help Desk no later than 15 workdays prior to the publication of the next Newsletter. Normally, the Newsletter is published on/about the first of each month. Potential articles as well as questions or comments on the Newsletter can be emailed to msiachelpdesk@msiac.dmsi.mil.

The MSIAC also publishes the quarterly *MSIAC Journal On-line*. If you would like to see the current issue of the *MSIAC Journal On-line* visit:

<http://www.msiac.dmsi.mil/journal>. If you would like to submit an article for the Journal On-line, please email your paper or article to msiachelpdesk@msiac.dmsi.mil at least 45 days prior to the next publication date.

UPCOMING EVENTS

5-10 February 2006

[2006 International Conference on Modeling and Simulation Technology for Power Plants \(PowerPlantSim'06\)](#)

Atlanta, GA

8-10 February 2006

[Society for Applied Learning Technologies \(SALT\)](#)

Orlando, FL

15-17 February 2006

[AUSA 2006 Winter Symposium and Exhibition](#)

Ft. Lauderdale, FL

28 February - 1 March 2006

[NMSO VV&A Technical Working Group \(TWG\) Workshop #23](#)

Suffolk, VA

6-9 March 2006

[22nd Test & Evaluation Conference](#)

Jacksonville, FL

7-8 March 2006

[MORS 2006 Education Colloquium](#)

USNA, Annapolis, MD

7-9 March 2006

[Modeling and Simulation Staff Officer Course \(MSSOC\)](#)

Alexandria, VA

27-30 March 2006

[Gun & Missile Systems Conference & Exhibition](#)

Sacramento, CA

27-30 March 2006

[Joint Undersea Warfare Technology Spring Conference](#)

San Diego, CA

22nd ANNUAL TEST & EVALUATION CONFERENCE

The 22nd Annual Test & Evaluation Conference sponsored by NDIA, will take place March 6-7, in Jacksonville, FL. This National Conference sponsored will address the issues regarding M&S in the context of T&E, outline what is at stake, present a synopsis of current policies regarding M&S including the interplay between T&E and M&S, and include presentations from

knowledgeable leaders from the T&E and M&S worlds to present and discuss how to make these two worlds work more effectively together in support of the Nation's defense, both at home and abroad. For more information visit:

<http://www.msiac.dmsi.mil/mscalendar/week.php?cid=&catid=&wd=&m=3&w=2&y=2006&s=>

COMMAND TO SHARE DATABASE CHALLENGES WITH INDUSTRY

(NORFOLK, Va. - Jan. 17, 2006) - During an upcoming industry forum, U.S. Joint Forces Command (USJFCOM) will ask industry and academia to provide new or innovative solutions for more effectively and efficiently managing massive amounts of multi-source data.

To facilitate industry and academia engagement in the area of database integration, the command will host a focused forum on Feb. 15, 2006, from 8:30-11:30 at the Chesapeake Conference Center, Chesapeake, Va.

"In general, focused forums provide USJFCOM an opportunity to disseminate information on joint capability challenges and focus areas to industry, academia, and government agencies," said Dr. Russ Richards, director of the command's Office of Research and Technology Applications (ORTA). "With greater knowledge on the present situation and level of desired capabilities, industry and academia can more readily discover innovative solutions."

Specifically, this forum will cover capabilities to manage massive amounts of multi-source data (both structured and unstructured) for correlation, fusion, visualization in four dimensions, and detection of changing environmental characteristics, said Richards.

Additionally, attendees can expect to listen to USJFCOM officials cover data discovery capabilities for enhancing the intelligence analyst's ability to perform trainable/guided data searches, semantic indexing, data mining, entity extraction, and link analysis.

According to command officials, they are also looking for scalable, robust architectures and tools to allow unimpeded access and analysis of large amounts of multi-source, multi-classification level data to find previously unknown patterns, associations, relationships, trends, and anomalies.

Forum attendees will have an opportunity to discuss relevant solution ideas with command officials following the scheduled forum. For complete article visit:

<http://www.jfcom.mil/index.htm>

ARMY FUTURE FORCE INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR) SYSTEM-OF-SYSTEM (SoS) CONCEPTUAL MODELING

As described in the Intelligence, Surveillance, and Reconnaissance (ISR) Annex to the Army Objective Force 2015 White Paper, "The U.S. Army Objective Force will have a higher dependence on ISR than ever before." To be more strategically responsive, deployable, and sustainable, tradeoffs will be made in Army combat system survivability. In the Future Force, a reduction in armor protection will be offset by increased Situational Awareness (SA) of the battlespace. The essential elements of this increased SA are: Knowledge of Self, Knowledge of the Enemy, and Knowledge of the Environment.

Unfortunately, representation of Army ISR systems in Modeling and Simulation (both Army and Joint) is inconsistent. During both the Future Combat Systems (FCS) Milestone B analysis, as well as during the ongoing FCS System Development and Demonstration (SDD) analysis, analysts are required to cobble together different combinations of simulations and manual analysis (e.g., White Cells) to answer Army/Joint ISR questions. These efforts are not uniform and tend to result in more questions than they answer.

As a first step in helping to fill this capability gap, the Army G2 is developing a set of verified ISR specific conceptual models to be stored in the Defense Intelligence

Modeling and Simulation Resource Repository (DIMSRR). These models will provide a common starting point for simulation developers (of both future and current Army / Joint Modeling and Simulation) to create models that will represent the Army ISR System-of-Systems and its Joint interdependence. This will describe the ISR conceptual modeling effort to date, the One Semi-Automated Forces (OneSAF) Objective System (OOS) – Conceptual Modeling Language (CML), and recommend a starting point for a possible Modeling and Simulation (M&S) conceptual modeling standard. For complete paper visit: <http://www.sisostds.org/index.php?tg=filema&n&idx=list&id=2&gr=Y&path=Simulation+Interoperability+Workshops%2F2004+Fall+SIW%2F2004+Fall+SIW+Papers+and+Presentations>

NEXT CARRIER BEING DEVELOPED VIRTUALLY IN NEWPORT NEWS

(NEWPORT NEWS) - Though construction of the Navy's next-generation aircraft carrier won't start for two years, workers at Northrop Grumman Newport News are already building it in a lab – virtually. Rather than pen and paper, engineers have turned to computer modeling and simulation to design the first ship in the new class, CVN-21.

Shipyard officials and invited dignitaries dedicated the Aviation Ship Integration Center to mark the shipbuilding milestone.

"In many ways, ASIC will allow us to help predict the future," Newport News President Mike Petters told the crowd, which included U.S. Reps. J. Randy Forbes, R-4th District, and Thelma Drake, R-2nd District, and aides from other Virginia members of Congress.

The center is the modeling and simulation core of the Herbert H. Bateman Virginia Advanced Shipbuilding and Carrier Integration Center, known as VASCIC. Located on West Avenue, it promises to revolutionize the way shipbuilders design by incorporating the latest technologies in a trade that has changed little in decades.

Eventually, all ships will be built using modeling and simulation, eliminating much of the guess work, said Vice Adm. Mark Fitzgerald, commander of the Navy's 2nd Fleet.

"Right now, we build a system, put it on a ship and then see if it works," Fitzgerald said.

ASIC has two components. In the 9,000-square-foot SimLab, employees use computer models to design parts of the ship, from the electromagnetic catapults that will launch fighter jets off the flight deck to the hangar where the jets will be stored. They also use the models to validate designs and concepts.

In the next six months, engineers in the SimLab will use computer models to figure out how the flight deck should be configured to meet the Navy's requirements for sorties. Crews must be able to launch and recover an average of 160 aircraft per day in a 30-day period, and 270 per day over four consecutive days. They have to be able to fuel and arm those planes in between launches.

By the time the ship is put in the water, now scheduled for 2015, it will be too late to do such testing, said Lindell "Yank" Rutherford, manager of operations for VASCIC.

"We know right now we can do what we're required to do on that ship," he said.

Next door to the SimLab, the 2,400-square-foot FlexLab holds several full-scale steel replicas of portions of the carrier. Inside those frames, workers put together pieces of the ship to see what works and what doesn't.

The new class of carriers will be cheaper to fix and maintain because the equipment is bolted to the floor, not welded, officials said. On existing Nimitz-class carriers, for example, workers must cut up floors and rip out older equipment to make way for upgrades.

On CVN-21, computer stations, light fixtures and wiring will be bolted to tracks, like seats on an airliner. That way they can be moved around or easily replaced to accommodate technology not yet invented.

About 15 units on CVN-21 will be reconfigurable. Even the steel walls can be taken down or moved. That allows crews to make room for special forces or coalition partners.

Glenn Dorsey, program manager for the FlexLab, said CVN-21 will have the most current technology available, as opposed to existing ships that can be obsolete by the time they leave the yard.

"We can wait until the very last minute to bring on the very latest and greatest technology available," he said.

Modeling and simulation is a rapidly growing industry in Hampton Roads, and the shipyard's lab expands the community's reach on the Peninsula. For original article visit:

<http://ebird.afis.mil/ebfiles/e20060206415401.html>

NAVY M&S TRANSFORMATION

Prior to Navy Modeling and Simulation office (NMSO's) M&S Transformation efforts, no comprehensive list of M&S requirements existed at any M&S level. Knowing everyone working on "xyz" in M&S is essentially impossible. There are three major tracks for Navy M&S transformation with goals that address strengthening enterprise management of DON M&S, improving and consolidating M&S tools and policy to standardize M&S across DoD, and fostering cooperation and coordination across DoD.

This transformation is more than an idea; it's backed by implementation strategies that include NMSO developed tools and their spiral development of components across DoD. The products of the transformation are enumerated below:

- M&S information tool (MSIT) – The M&S Information Tool (MSIT) is an application that provides a single portal into four critical tools. These tools

comprise the M&S Resource Repository, the VV&A Documentation Tool, the Capabilities Requirements Tool and the Technical Requirements Tool. The MSIT not only provides a single access to these four tools but will also provide a query capability between the tools databases.

- M&S Support Plan (MSSP) – Determines how and when lifecycle support for M&S should be managed.
- Verification, Validation, and Accreditation Documentation Tool (VDT) – Provides an online, collaborative tool used to prepare the required documentation of the VV&A processes.
- Price Performance Model (PPM) – Provides a template for the processes.

NMSO has promoted consistent architecture design for the M&S information Tool, PPM, and MSSP, which enforces data consistency. These tools limit and eliminate redundant work for acquisition programs that are required to provide the information as part of the process. Data is entered only once and made available throughout the other tools. For original article visit:

<http://nmso.navy.mil/>

FCS MODELING AND SIMULATION SUPPORTS 21st CENTURY SOLDIERS

FCS is the Army's flagship Simulation and Modeling for Acquisition, Requirements and Training (SMART) program. The SMART concept brings all stakeholder communities together using an Advanced Collaborative Environment (ACE) to support an integrated M&S capability.

The M&S strategy's core — achieved by the FCS Lead System Integrator (LSI), One Team Partners and Program Manager Unit of Action (PM UA) — is a collaborative effort aimed at developing and maintaining a consistent and credible FCS-equipped UA System-of-Systems (SoS) simulation representation.

The FCS Simulation Framework (S2F) will meet the program's life-cycle requirements while enabling the execution of concurrent systems engineering development;

producing and/or acquiring software and hardware products; executing a broad range of test, experimentation, analysis, training and operational applications; and providing support to the FCS capability spin-out concept. The FCS M&S strategy emphasizes product line and tool kit commonality, repeatable processes and reuse throughout FCS internal development and the Army. Critical to M&S acquisition support is the concept of standards and an SoS simulation architecture that guides the acquisition of M&S assets that will be documented in the FCS product line repository.

The FCS S2F must replicate at effective levels of fidelity and resolution everything that is represented in the operational space — including embedded M&S — as communicated in the FCS Operational Requirements Document. Also, it must virtualize, synthesize and functionally enable all items in the natural operational environment encountered by the FCS, including terrain; weather; gravity; and chemical, biological and nuclear components.

The S2F must also consider the FCS embedded tactical software, including battle command, mission rehearsal, course-of-action analysis and training. Creating the S2F involves selecting, modifying and developing M&S tools — using a program-approved, structured make/buy process — from the M&S community at large. One of our challenges in this area is to transition the Army M&S components that were created for Cold War contexts to the network-centric warfare contexts for the Future Force. For original article visit:
http://asc.army.mil/docs/pubs/alt/current/issue/full/00_ALT_magazine_Full_Issue_200506.pdf

CONGRESSMAN CALLS COMMAND CATALYST FOR MODELING AND SIMULATION

(SUFFOLK, Va. – Feb. 7, 2006) - Congressional Modeling & Simulations (M&S) Training Caucus chairman, Rep. J.

Randy Forbes (R-Va.) touted U.S. Joint Forces Command (USJFCOM) as a catalyst for the modeling and simulation industry.

“USJFCOM has had a huge impact on this region and what we see taking place in M&S. But it’s not just this area; what USJFCOM does in M&S is hugely important for national security of the country,” said Forbes.

“One of our big concerns is that we get constantly better and better in our (military) training – because five seconds can make the difference between one of our sailors or soldiers living or dying,” said Forbes who was referring to USJFCOM’s use of M&S for experimentation and enhanced military training.

The remarks came during an interview conducted at the Modeling & Simulation Leadership Summit.

Government officials and industry and academia representatives from 24 states gathered at the summit to discuss major issues facing the national M&S industry.

“Our big goal is to bring the best minds in M&S - from around the country – and ask ‘what do we need in terms of policy issues to help aid this industry?’” said Forbes. “How do we jointly move forward in a collective manner that’s going to benefit the whole country?”

USJFCOM has laid the foundation and now the M&S “industry can absolutely just simply catapult into areas that we are all excited about,” said Forbes. “One of the big ones is what we can do with urban planning around the country.” For complete article visit:
<http://www.jfcom.mil/newslink/storyarchive/2006/pa020706.htm>

TRUMAN TURNS INTO VIRTUAL PLAYGROUND FOR NAVY CREWS

The Navy is investigating whether a video game that replicates operations aboard an aircraft carrier can help train ship and aviation crews.

Modeled upon flight deck operations on the aircraft carrier USS Harry S. Truman, "24Blue," was developed by the Hunt Valley, Md.-based gaming company, BreakAway, Ltd., in conjunction with the Center for Naval Aviation Technical Training.

The objective of the game is to launch a sequence of fixed-wing aircraft—including the F-18 Hornet, the EA-6B Prowler and the S-3B Viking—off the carrier quickly, before it is attacked, says Mike McShaffry, head of the company's Austin, Texas, studio. "If you don't run it in 40 minutes, the Sparrow missiles and the [close-in weapon system] cannons fire off on the carrier, and you have a failure case, because you didn't do your job fast enough," he says.

To give the game as much fidelity as possible, the Navy's Education and Training Command flew McShaffry and three of the game's development team out to the USS Truman for a first-hand look at how crews handle flight deck operations. The experience was illuminating and educational, says McShaffry, and allowed the team to design realistic scenarios.

"For example, the Viking can't fold its wings down on the fourth catapult while the jet-blast deflector shield on the third is up, because they would actually collide," he says. Maneuvering aircraft without running into anything else or off the deck and burning fellow crewmembers with jetwash were only some of the other hazards he and his team learned. For complete article by Grace Jean in National Defense Magazine visit:

<http://www.nationaldefensemagazine.org/issues/2006/feb/TrumanTurns.html>

GAME BRANCHES OUT INTO REAL COMBAT TRAINING

When the Army launched its PC-based video game, America's Army, three and a half years ago, the service's intention was to connect with young people, encourage teamwork and promote its core values. But now the action game is morphing beyond its original mission, becoming the platform for numerous other military and government training simulations.

"Before we even launched the public game, we knew from development that this type of technology was pretty powerful for training, especially small units—small infantry teams, special forces teams," said Christopher Chambers, deputy director for America's Army, in an interview with National Defense.

The game's technology has been incorporated into a number of virtual training applications already, including embedded trainers, in which America's Army software runs on the computers that drive their respective weapons systems, such as the Bradley, the Javelin and the CROWS, or common remotely operated weapons station.

At the Serious Games Summit in Arlington, Va., Michael Bode, a software engineer for the Army's Redstone Arsenal, demonstrated the prototype of a Tube-launched, Optically-tracked, Wire-guided (TOW) anti-tank missile system trainer—one of the newest simulations that was built with America's Army software.

"We're turning it around incredibly fast because of the high re-use factor" of America's Army, he said.

But the game's applications stretch beyond individual weapons training. "What we can do is connect our visualization to real lessons, real vehicles and other simulations, and now we have a more complete set of training levels, from the team up to the division," said Chambers.

The project's next goal is to leverage the service's simulation centers, which utilize computer technologies to prepare soldiers for battlefield scenarios. By linking up the individual game-based virtual trainers with large-scale training operations, the Army can have multi-level tiers of virtual training going on, he said. For complete article by Grace Jean in National Defense Magazine visit: http://www.nationaldefensemagazine.org/issues/2006/feb/games_branch.htm

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